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DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114.

Applicant's submission filed on 05/06/11 has been entered.

2. Claims 1, 3-14 and 42-54 are pending. Currently no claims are in condition for allowance.

Claim Rejections - 35 USC § 103

3. Claims 1, 3-5, 7-11, 42, 43 and 48-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halton et al. (US 6,697,346 B1) in view of Dupont (US 5,729,542).

Regarding claim 1, Halton discloses a method of accessing a wireless multiple-access communication system, comprising:

receiving at least one broadcast message including information regarding configuration of at least two contention-based random access channels for a frame (...base station periodically broadcasts information about the partition of a random access time window to at least one first communication device 27, 28..... column 13, lines 24-30);

determining a current operating state of a terminal (column 8, lines 45-49);

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selecting one contention-based random access channel from among at least two contention-based random access channel based on the current operating state (column 7, lines 36-50; column 8, lines 45-column 9, line 6; column 12, lines 40-55); and

transmitting a message on the selected random access channel to access the system during frame (...transmitting random access data in the chosen random access slot...column 12, lines 56-59; claim 10).

Halton, as shown in Fig.2, discloses a random access time window partitioned into random access slots and reservation based random access slots. Further, Halton discloses that when contention based use is not in demand, more capacity can be given to reserved resources. However, Halton does not expressly disclose that the second random access slot used by both register and unregistered terminals for system access.

Dupont teaches that each access channel is divided into two access periods. One part bursts being for expedited access requests and the other being for both regular and expedited access requests (column 6, line 45-column 7, line 8).

It would have been obvious to one ordinary skill in the art at the time the invention was made to use the second slot by both register and unregistered terminal, such as that suggested by Dupont, in the system of Halton in order to allow to dynamically adapt the random access time window resources to changing requirements and an optimal utilization of the resources (Halton, Abstract).

Regarding claim 3, Halton discloses the method, wherein transmissions on the first random access channel is compensated for propagation delay (column 6, lines 6-13).

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Regarding claim 4, Halton discloses the method wherein the current operating state is indicative of whether or not the terminal has registered with the system (column 15, lines 48-51).

Regarding claim 5, Halton discloses the method, wherein the current operating state is indicative of whether or not the terminal can compensate for propagation delay to an access point receiving the message (column 6, lines 6-13).

Regarding claim 7, Halton discloses retransmitting the message until an acknowledgement is received for the message or a maximum number of access attempts has been exceeded (column 12, line 53-column 13 line 5).

Regarding claim 8, Halton discloses if access is not gained via the selected random access channel, transmitting another message on another random access channel selected from among the at least two random access channels (column 13, lines 5-25).

Regarding claim 9, Halton discloses the method, wherein the transmitting includes selecting a slot from among a plurality of slots available for the selected random access channel, and transmitting the message in the selected slot (see fig. 8; column 9, line 24- column 10, line 64).

Regarding claims 10 and 11, Halton discloses the method, wherein the message includes an identifier for the terminal (base station transmits information to the corresponding mobile station...it is inherent to use a distinct identifier that the mobile station and the base station can communicate in the CDMA communication system...column 13, lines 28-30).

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Regarding claim 42, Halton discloses the method wherein receiving the at least one broadcast message comprises receiving at least two broadcast messages each associated with a different of the at least two random access channels (column 12, lines 40-53).

Regarding claim 43, Halton discloses the method further comprising determining a slot to transmit the message on the one contention-based random access channel based upon a slot assigned to the at least one contention-based random access channel in the at least one broadcast message and wherein transmitting comprises transmitting the message in the slot of the frame (column 9, lines 24-55).

Regarding claim 48, Halton discloses the method wherein determining the current operating state of a terminal comprises determining if the terminal is scheduled and the method further comprising utilizing a data channel, and not selecting one contention-based random access channel, for transmission (column 9, lines 56-61).

Regarding claim 49, Halton discloses the method wherein a first contention-based random access channel of the at least two contention-based random access channels corresponds to a contention-based random access channel used by a terminal after acquiring system frequency, wherein determining comprises determining whether the terminal has acquired the system frequency, and wherein selecting comprises selecting the first contention-based random access channel as the one contention-based random access channel when the terminal has acquired the system frequency and is not registered (column 9, lines 32-55).

Regarding claim 50, Halton discloses the method of claim 1, wherein transmitting the message comprises transmitting a different message format on each of the at least two contention-based random access channels (column 7, lines 55-58; column 9, lines 32-34).

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Regarding claim 51, Halton discloses the method further comprising receiving an assignment responsive to the message from a base station (column 9, lines 56-60).

Regarding claim 52, Halton discloses the method wherein receiving the assignment comprises receiving an acknowledgement in a message including the assignment (column 8, lines 58-67).

Regarding claim 53, Halton discloses the method further comprising determining scheduling information of the assignment for a channel distinct from the at least two contention-based random access channels (column 9, lines 32-55).

Regarding claim 54, Halton discloses wherein determining comprises determining whether the terminal is not registered with the system; selecting comprises selecting the second contention-based random access channel to register with system, if the terminal is unregistered; and transmitting comprises transmitting the message as a request to register with the system (column 8, lines 49-67; column 9, lines 40-55).

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Halton in view of Dupont as applied to claim 1 above, and further in view of Lee et al. (US 7,453,844 B1).

Halton in view of Dupont discloses all the claim limitations as stated above, except for determining the current stated based upon a required received SNR.

Lee teaches that a wireless device is granted or refused registration with the channel based on factors relating to the device, the channel (such as signal strength and other channel characteristics) and/or other channels that the device could access (column 8, lines 60-67).

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It would have been obvious to one ordinary skill in the art at the time the invention was made to use the teachings from Lee of determining the current operating state based upon received SNR in the system of Halton in view of Dupont in order to maintain quality of service and to ensure that wireless devices are allocated efficiently among the available channels (column 3, lines 20-35).

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Halton in view of Dupont as applied to claim 1 above, and further in view of Crest et al. (US 2004/0047292).

Halton in view of Dupont discloses all the claim limitations as stated above, Except for a common identifier used by unregistered terminals.

Crest teaches that when a traffic channel shared by more than one user terminal, an identifier can determine terminal by a temporary flow identity. This identifier survives only for the duration of the channel, i.e. it does not code for the user terminal uniquely but is merely used to identification of messages to or from a particular user terminal for the time period of the respective channel transmission (0057).

It would have been obvious to one ordinary skill in the art at the time the invention was made to use the teachings from Crest of using a common identifier in the system of Halton in view of Dupont. One of ordinary skill in the art would have been motivated to do this because using a common identifier allows reusing and sharing the same identifier.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Halton in view of Dupont as applied to claim 1 above, and further in view of Caldwell (US 2002/0122393).

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Halton in view of Dupont discloses all the claim limitations as stated above, except for multiple-access communication system supports terminal with multiple antennas.

Caldwell teaches in Fig. 1, a mobile terminal that comprises two antennas 12 and 26.

It would have been obvious to one ordinary skill in the art at the time the invention was made to use the teachings from Caldwell of using multiple antennas in the system of Halton in view of Dupont. One of ordinary skill in the art would have been motivated to do this because multiple antennas allows the mobile terminals to measure the quality of signal reception by each of the two antennas and selects the one of the at least two antennas providing the better quality of signal reception.

7. Claims 14 and 44-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Halton in view of Dupont as applied to claim 1 above, and further in view of Fukuda (US 6,956,813 B2).

Halton in view of Dupont discloses all the claim limitations as stated above. Halton discloses that multiple access systems (such as FDMA, TDMA CDMA) are used to support the simultaneous access of a plurality of mobile stations to one base station with the limited resources of the transmission system. Additional to these basic types of multiple access systems, combinations of these different systems are possible and in practical use. However, Halton in view of Dupont does not expressly disclose that the multiple-access communication system uses OFDM.

Fukuda teaches, in figs. 8 and 12, a communication band that is divided into eight OFDM sub-bands (column 8, lines 55-67; column 10, lines 6-column 11, line 16).

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It would have been obvious to one ordinary skill in the art at the time the invention was made to use OFDM in the communication system of Halton in view of Dupont as taught by Fukuda. One ordinary skill in the art would have been motivated to do this because using OFDM reduces multiple-access interference so that spectral efficiency and high data rate limits in a common wireless channel are increased.

Response to Arguments

8. Applicant's arguments with respect to claims 1, 3-14 and 42-54 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SABA TSEGAYE whose telephone number is (571)272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan A. Phillips can be reached on (571) 272-3940. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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